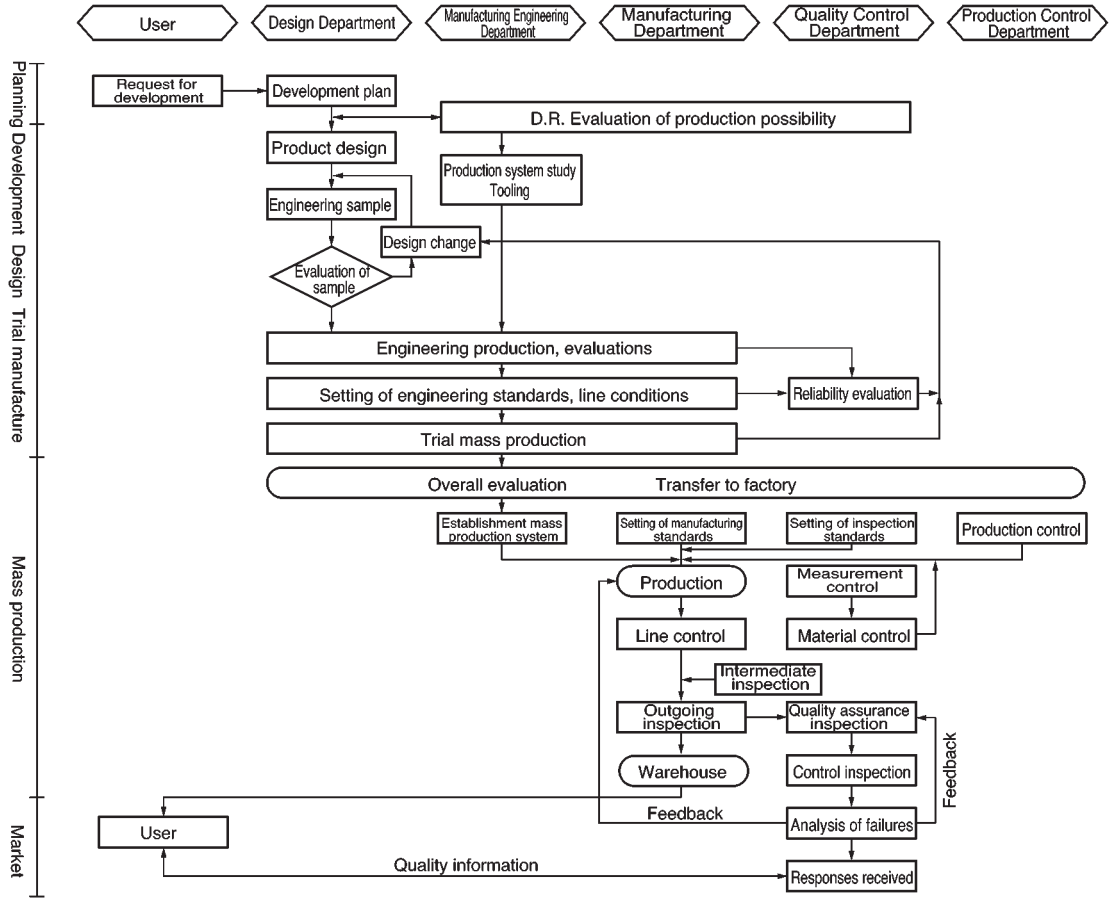
Quality assurance and reliability

We design, manufacture, and sell our sensors with the top priority on quality. Our system for ensuring high quality products is as follows.



●Life

The life of semiconductors is often said to be limitless. However, this is not the case for infrared LEDs, as they lose output power.

When designing circuitry for an infrared LED, design in sufficient margin to allow for the LED's life (loss of output power). Typical changes in output power as time elapses are shown below. In cases where current will pass for prolonged periods of time, be sure to allow sufficient design margin so that the circuit will not malfunction if the output falls to the level of the maximum fall-off curve.

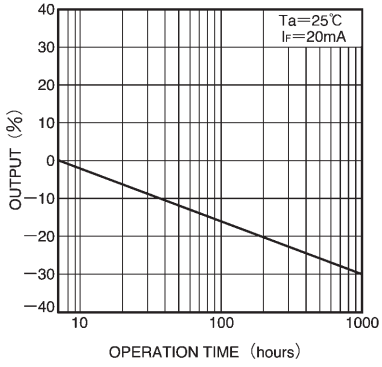


Fig.1 Example: Change of P_O vs. time for SIR-56ST infrared LED

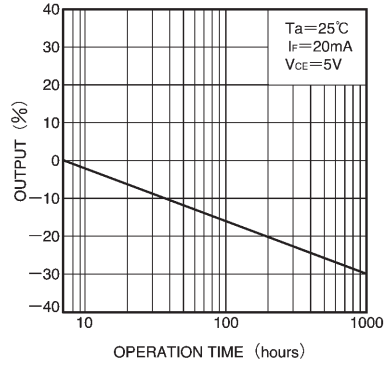


Fig.2 Example: Change of I_C vs.time for RPR-359F photoreflector

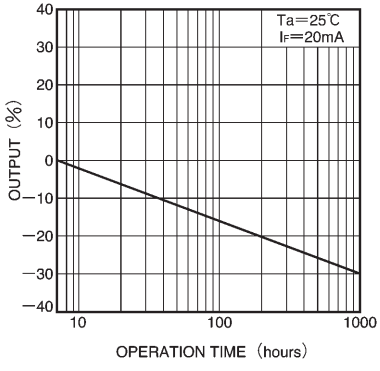


Fig.3 Example: Change of P_O vs.time for SIM-20ST infrared LED

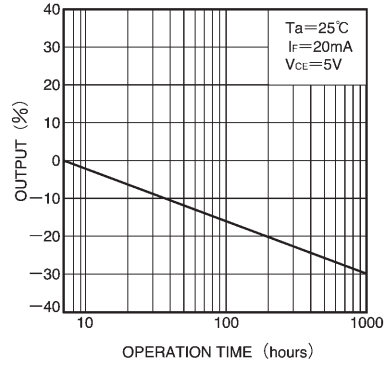


Fig.4 Example:Chage of I_C vs. time for RPI-574 photointerrupter

●Reliability

There are two broad categories of reliability testing : life testing and environmental testing.

ROHM has standardized its procedures to accord with the standards of Japan Industrial Standards (JIS) and American military standards (MIL). Typical reliability testing procedures are shown in the following.

	Test	Testing conditions		Standards for determining failure
Life testing	High temperature	100℃	1000 hours	V_F : U.S.L×1.2 P_O : U.S.L×0.7 I_R : U.S.L×3 Note: U.S.L. is maximum allowed value of standard. L.S.L. is minimum allowed value of standard.
	High temperature, high humidity	85℃, 85%	1000 hours	
	Low temperature	−40℃	1000 hours	
	Load life	I_F=20mA	1000 hours	
Environmental testing	Temperature cycling	−40℃～100℃ 20 cycles with each cycle as follows : (30 minutes) (30 minutes)		
	Soldering heat tolerance	260℃,5 seconds, 2 times Bottom face of plastic immersed 2 mm into bath		
	Pulling leads	Load = 300 g	30 sec / lead	No detaching
	Bending leads	2 cycles with each cycle as follows : Bend with load of 100 g at 90℃ then restore to original position.		
	Solderability	5 seconds at 230℃ with flux		At least 90% covered with new solder.

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